

Module 2

## Roofing Fall Protection

This training will cover the following:

- Fall arrest equipment
- Inspection and maintenance of fall protection equipment
- Rescuing a fallen co-worker
- The fall protection work plan

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## Fall Arrest

Fall Arrest – two types used in roofing

**Personal Fall Arrest** - full body harness is the most common

**Catch Platform** – sometimes used on large buildings

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## Fall Arrest

Catch Platforms

Must be no lower than 10 ft. from roof edge.

Must be at least as wide as the fall distance, but never less than 45 inches in width.

Must have guardrails, toeboard and not used for storage

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## Fall Arrest Equipment

### Personal Fall Arrest

A **full body harness** is a common fall arrest system used in roofing.

A full body harness stops a fall in progress and minimizes the force of the fall to your body.

Waist belts not allowed because a fall will usually result in injury.



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## Fall Arrest Equipment

### Full Body Harness

The attachment point on a full body harness is a D-ring on your upper back.

It must be an commercial ANSI Class III harness. Recreational climbing harness are not allowed.

Be sure to use a size that fits you properly.



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## Fall Arrest Equipment

### Why Waist Belts Are Not Safe



If you fall, the high force of the fall is concentrated at your waist rather than the 6 points of a full body harness.

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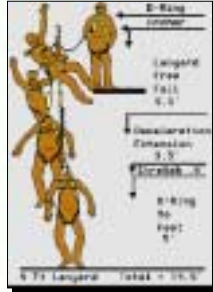
## Fall Arrest Equipment



Some fall arrest gear comes with a shock-absorbing lanyard.

Must be adjusted to prevent hitting ground or lower level.

In a fall, the equipment stretches several feet.



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## Anchors

**Fall arrest equipment is only as good as the anchor**

An anchor must be able to withstand **5000 lbs.** of force without failing.

Manufactured anchors must be installed according to manufacturer's instructions.

Check pre-installed anchors before using.

In a fall, your life depends on the anchor holding.



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## Anchor Strength

These commercial anchors will support 5000 pounds when installed according to manufacturer's instructions



But, what about knots tied to trusses?

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## Knots and Anchor Points

A knot can be used to secure a lifeline to an anchor point only when:

You know the breaking strength of the lifeline,

and

The knot does not decrease the strength of the lifeline below 5000 lbs.



Truss peak used as anchor point

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## Knots and Anchor Points

### Rope-Breaking Strength

Material Diameter	Manila	Polypro	Dacron	Nylon
5/8 in.	3470	4858	6940	8675
17 mm	3987	5882	7974	9967
18 mm	4477	6268	8954	11,192
¾ in. 19 mm	4997	6996	9994	12,492

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## Knots and Anchor Strength

### Loss of rope strength from knots

Knot	percent of line strength lost	percent of line strength left
Bowline	37%	63%
Round turn (double half-hitch)	30-35%	65-70%
Clove hitch	40%	60%

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### Fall Arrest Equipment Use



Knots in ropes or lanyard can reduce strength by as much as 50%



Protect rope or lanyard from sharp edges

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### Fall Arrest Equipment Use



**Snap hooks**

Must be locking type



Never hook two snap hooks together

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### Fall Arrest Equipment Use

#### Some Equipment Do's and Don'ts

- Do inspect for wear and damage before use.
- Do remove from service after a fall for inspection.
- Don't use to lift materials.
- Don't attach to guardrails or hoists.

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## Fall Arrest Equipment Use

### Fall Arrest Gear Inspection

Look for the following:

Webbing - Cuts, tears, abrasion, fraying, stretching, mold, chemical damage

D-rings - Cracks, breaks corrosion, rough edges

Tongue-buckle - Distortions, added holes, broken grommets

Ropes - Abrasion, internal damage



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## Handling Tools & Materials

Describe here your procedures for handling, storing and securing tools and materials at the jobsite.



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## Overhead Protection

Describe how will you protect any employees working or passing through area below roof from overhead items dropping on them such as:

- Hard hats
- Warning signs
- Warning line designating a material handling area
- Debris nets
- Toe boards on walkways and decks



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## Fall Protection Rescue

Describe rescue methods here – self-rescue or assisted rescue using ladders, aerial lifts, forklifts, etc. Also describe first aid measures for injured fallen worker, and how will get medical treatment.



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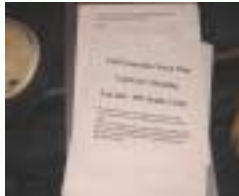
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## Fall Protection Plan

### Fall Protection Plan For Every Job

We are required to prepare a fall protection plan for every job.

Be prepared to go over this plan with your crew boss or lead worker at the beginning of every roofing job.



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## The End



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